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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,691	06/04/2001	Michael C. Pirrung	1579-373	9090

7590 01/13/2003

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EXAMINER

TRAN, MY CHAU T

ART UNIT

PAPER NUMBER

1639

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,691

Applicant(s)

PIRRUNG ET AL.

Examiner

My-Chau T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election with traverse of Group IV (Claims 14-18 and 20) in Paper No. 9 is acknowledged. The traversal is on the ground(s) that all groups (Group I (Claims 1-6); Group II (Claims 7-10 and 19); Group III (Claims 11-13)) should be rejoined with Group IV because all the claims refers to a bromoacetamidossilylated solid support and the bromoacetamide group that react with the biopolymer. This is found persuasive because upon reevaluation of the restriction made of record. All of the claims refer to a bromoacetamidossilylated solid support and the bromoacetamide group that react with the biopolymer. Therefore, all groups are rejoined with Group IV.

2. Claims 1-20 are treated on the merit in this Office Action.

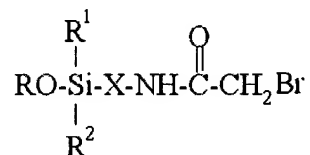
Claim Objections

3. Claims 1, 7, and 9 are objected to because of the following informalities: The chemical structure of Formula I is improperly drawn because there is a typographical errors. The claimed structure of Formula I is not the same structure as Formula I disclosed on page 6 (lines 10-17) of the specification. Further, the claimed structure of Formula I is not chemically feasible since it is not chemically possible to have only two bonds on the carbon and a double bonded oxygen on the bromine.

Appropriate correction is required.

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4. The following rejections are based on the structure of Formula I that is disclosed in the specification on page 6, lines 10-17. That Formula I structure is:



Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in-

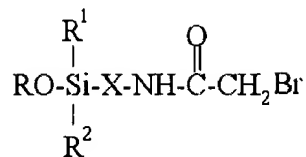
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

(f) he did not himself invent the subject matter sought to be patented.

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhao (US Patent 6,448,010 B1).

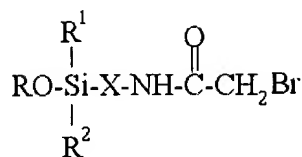
The examiner has interpreted the structure of Formula I to be as follows:



Zhao teaches a nucleic acid array and method of anchoring oligonucleotide to the substrate (col. 2, lines 1-8; col. 3, lines 19-29). The substrate is glass (col. 3, line 26) (referring to claim 4). The glass substrate contains a bromoacetamide derivatized silane glass surface (col. 3, lines 62-67 to col. 4, lines 1-2; fig. 4) (referring to claims 1-10). The linker group is $(CH_2)_n$ in which n is 3 (fig. 4). The oligonucleotide is modified with a nucleophile such as a thiophosphate group (col. 3, lines 29-32 and 44). The attachment of the oligonucleotide is by reacting the thiophosphate to the bromoacetamide derivatized silane glass surface (col. 4, lines 13-15; fig. 6) (referring to claims 11-12). The oligonucleotide is attached at the 5' end (col. 5, lines 12-19). The oligonucleotide is labeled with a detectable dye such as a fluorescent dye (col. 5, lines 1-2) (referring to claims 17-18). The nucleic acid array is formatted into a kit (col. 2, lines 9-11) (referring to claims 19-20). Therefore, the nucleic acid array and method of anchoring oligonucleotide to the substrate of Zhao anticipates the presently claimed invention.

7. Claims 1-18 are rejected under 35 U.S.C. 102(a) as being anticipated by Pirrung et al. (*Langmuir*, 12/4/1999 (Web Published), 16:2185-2191).

The examiner has interpreted the structure of Formula I to be as follows:



Pirrung et al. teaches a method of attaching oligodeoxyribonucleotides (DNA) to glass involving bromoacetamide/phosphorothioate linking chemistry (abstract). The glass slide is derivatized with bromoacetamidossilanes (pg. 2186, right col., lines 1-25). The DNA is immobilized onto the glass slide by nucleophilic reactions with the bromoacetyl group in which the DNA is 5'-phosphorothioate DNA bearing a 3'-fluorescein dye (pg. 2186, right col., lines 31-34). The attachment of the oligonucleotides occurs at the 5'-ends (pg. 2186, left col., lines 44-45).

8. Claims 1-20 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. The authorship of the published article in *Langmuir* includes Janice D. Davis, which is not listed as one of the inventor in the instant application. Since the other authors, Michael C. Pirrung and Amy L. Odenbaugh are listed as the inventors in the instant application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999.

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The examiner is on ***Increased Flex Schedule*** and can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 703-306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.

mct

January 9, 2003


RADMASHRI PONNALURI
PRIMARY EXAMINER